This listing of claims will replace all prior versions, and listings, of claims in the application.

CLAIM 1. (Previously amended) In a method for the bleaching of chemical pulp, wherein the pulp is treated in a plurality of different steps and wherein at least in one step a bleaching solution which contains a peracid is used, the improvement in which the peracid is used in an post-bleaching which is the last step of the bleaching process, the post-bleaching taking place in the presence of one or several earth-alkali metal compounds, wherein the pH of the post-bleaching solution is within the range of 3-8, and the kappa number of the pulp before the post-bleaching with a peracid is at maximum 4.

CLAIM 2. (Previously amended) A method according to Claim 1, wherein the brightness of the pulp before the post-bleaching carried out with a peracid is at a minimum 85% ISO.

CLAIM 3. (Canceled)

CLAIM 4. (Previously amended) A method according to claim 1, wherein the amount of the peracid used for the post-bleaching is 0.1-7 kg/tp.

CLAIM 5. (Previously amended) A method according to claim 4, wherein the peracid is peracetic acid.

CLAIM 6. (Previously amended) A method according to claim 1, wherein the post-bleaching solution contains a calcium compound.

CLAIM 7. (Previously amended) A method according to claim 1, wherein the post-bleaching solution contains a magnesium compound.

CLAIM 8. (Canceled)

CLAIM 9. (Previously amended) A method according to claim 1, wherein the post-bleaching is carried out after the bleach plant steps in a pulp flow pipe, a storage tower and/or the paper machine.

CLAIM 10. (Previously amended) A method according to claim 1, wherein the post-bleaching is carried out in the paper machine or elsewhere at a paper mill.

CLAIM 11. (Previously amended) The use of a solution which contains a peracid and an earth-alkali metal for the post-bleaching of a delignified pulp at a paper mill.

CLAIM 12. (Previously added) A method according to claim 2 wherein the kappa number of the pulp before the post-bleaching with a peracid is at a maximum 4.

CLAIM 13. (Previously amended) A method according to claim 4, wherein the amount of the peracid used for the post-bleaching is 0.5-3 kg/tp.

CLAIM 14. (Previously added) A method according to claim 6, wherein the calcium compound is calcium acetate or calcium carbonate.

CLAIM 15. (Previously added) A method according to claim 7, wherein the magnesium compound is magnesium sulfate.

CLAIM 16. (Previously added) A method according to claim 8, wherein the pH is within the range of 4-7.

CLAIM 17. (Previously added) A method according to claim 1, wherein peracid is used to turn colorless chromophoric groups in the pulp.

CLAIM 18. (Previously amended) A method for the bleaching of chemical pulp, comprising treating the pulp in a sequence of different steps at a bleaching plant, and finally in a post-bleaching step in a pulp flow pipe during transfer of the pulp, in a storage tower or at a

paper mill outside the bleach plant, said post-bleaching being applied to a pulp having a kappa number at maximum 4 and comprising use of a bleaching solution containing peracid and having a pH within the range of 3-8, in the presence of one or several earth-alkali metal compounds, the peracid turning colorless chromophoric groups in the pulp.

CLAIM 19. (Previously added) A method for the bleaching of chemical pulp, comprising treating the pulp in a sequence of different steps at a bleach plant, transferring the treated pulp outside the bleaching plant and subjecting said treated pulp to a post-bleaching step outside the bleach plant in a pulp flow pipe during transfer of the pulp, in a storage tower or at a paper mill, said post-bleaching being applied to a pulp having a kappa number at maximum 4 and comprising use of a bleaching solution containing peracid and having a pH within the range of 3-8, in the presence of one or several earth-alkali metal compounds, the peracid turning colorless chromophoric groups in the pulp.